Company Name	Tiarco Chemical	**Permit Writer:**	Kirk Schneider
Permit Number:	1200-0034-CV	**Date:**	DRAFT

SIC CODE: 2851
NAICS CODE: 325510
DATE APPLICATION RECEIVED: April 10, 2017

EXPEDITED REVIEW

Expedited review form received on April 10, 2017 and the permit application was denied expedited review on April 12, 2017 due to air dispersion modeling issues. This facility again submitted a request for expedited review on May 2, 2017 and was accepted for expedited review on May 2, 2017.

FACILITY DESCRIPTION

Chemical manufacturing operation that manufactures a textile dye-curing agent, surfactants and other chemical compounds.

PROJECT DESCRIPTION

Synthetic Minor Construction Permit. This facility is requesting to do the following:

- Permit the experimental ANOBEX process to run in existing Reactor 0007 or Reactor 0021 but not simultaneously. On April 14, 2016, this facility was given initial approval to run 8 trial batches of ANOBEX in Reactors 0002, 0003, 0021 or 0007. This facility then requested on July 5, 2016 to produce more of this product so its downstream processors would have enough product for their evaluation of its use in packaging applications. On July 7, 2016, the Department granted approval to produce the additional product.

- Permit the temporary RTO associated with the experimental ANOBEX process to control emissions from the ANOBEX process. This facility will also use the RTO to control emissions from its other processes emitting Acrylonitrile. On January 23, 2017, this facility submitted a request to install a temporary Thermal Oxidizer to support the ANOBEX Trial Program and on January 30, 2017, the Department granted the request.

- Add a Spray Drying Operation with a Natural Gas or Propane fired 1.12E+06 Btu/hr burner and Product Recovery Baghouse. This baghouse was determined to be part of the process and not a control device:

BAGHOUSE INHERENT PART OF PROCESS DETERMINATION	
Question	**Product Recovery Baghouse**
Is the primary purpose of the equipment to control air pollution?	No
Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?	The baghouse will cost approximately $24,000. The value of the captured product is estimated to be over $1,000,000/yr.
Would the equipment be installed if no air quality regulations were in place?	Yes
Determination	Part of Process

- Add a Methyl Acrylate Storage Tank N (Exempt Source)
- Add an Octopol LiB variation to the exempt Octopol PTB process
- Remove the currently exempt processes CheMarco 1507 and CheMarco 2504
- Remove the currently permitted processes T-Surfs and A22
- Establish federally enforceable facility wide limits for VOC < 100 tpy, Individual HAP < 10 tpy and total HAP < 25 tpy.

SOURCE TEST REQUIREMENTS

This facility proposed to conduct a design analysis in lieu of conducting a performance test for DRE because the flow diminishes over time and this makes conducting a destruction efficiency test very difficult. Several of the MACT standards allow as an alternative a design evaluation of the control device in place of an initial performance test. This project is not subject to a MACT standard but this facility evaluated MACT standards that contain design analyses and determined that the procedures specified by 63.1257(a)(1) best fit their process. The design analysis will require that a minimum operating temperature be established.

SPECIAL CONDITIONS, MONITORING, LIMITS

- The minimum RTO operating temperature as determined by the design analysis will be required to be continuously monitored.

- Continuous temperature monitoring of the RTO will be required as specified by SC Regulation 61-62.1 Section II(J)(2).

- To comply with modeled emission rates this facility must operate the RTO to achieve a 98% DRE.

FACILITY WIDE EMISSIONS						
Pollutant	**Emissions Prior to Changes (tpy)**			**Emissions After Changes (tpy)**		
	Uncontrolled	**Controlled**	**Limited**	**Uncontrolled**	**Controlled**	**Limited**
PM	97.51	11.28	N/A	94.53	8.03	N/A
PM_{10}	96.56	10.33	N/A	93.59	7.36	N/A
$PM_{2.5}$	1.03	No Control	N/A	1.09	No Control	N/A
SO_2	67.12	56.09	N/A	67.13	56.09	N/A
NO_X	19.71	No Control	N/A	20.85	No Control	N/A
CO	11.36	No Control	N/A	12.02	No Control	N/A
VOC	45.43	43.28	N/A	105.21	15.61	100
Highest HAP	7.34 Methylene Chloride	7.34 Methylene Chloride	N/A	69.15 Acrylonitrile	1.34 Acrylonitrile	10

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FACILITY WIDE EMISSIONS						
Pollutant	**Emissions Prior to Changes (tpy)**			**Emissions After Changes (tpy)**		
	Uncontrolled	**Controlled**	**Limited**	**Uncontrolled**	**Controlled**	**Limited**
Total HAP	10.31	7.34	N/A	76.48	10.69	25

OPERATING PERMIT STATUS

This facility currently operates under a State Minor Source Operating Permit. After this project, this facility will request a Conditional Major operating permit.

REGULATORY APPLICABILITY REVIEW	
Regulations	**Comments/Periodic Monitoring Requirements**
Section II.E – Synthetic Minor	This facility emits PM, $PM_{2.5}$, PM_{10}, SO_2, CO, NO_x and VOC which are PSD pollutants. After the changes, uncontrolled facility-wide emissions of these pollutants will each be less than 100 tpy except for VOC. This facility's uncontrolled VOC emissions will be greater than 100 tpy but this facility will operate an RTO to limit its potential to emit to less than 100 tpy. This control device will be public noticed which will make it federally enforceable. This facility's potential to emit considering federally enforceable air pollution controls will be less than 100 tpy for this pollutant. Compliance with the VOC limit will be demonstrated by demonstrated by operating and maintaining the RTO and calculating VOC emissions.
Section II(G) Conditional Major	This facility is eligible for a Conditional Major operating permit as uncontrolled emissions after the changes of $PM_{2.5}$, PM_{10}, SO_2, CO, NO_x will each be less than 100 tpy and total controlled VOC will be less than 100 tpy. This facility will be assigned a Title V avoidance limit of 100 tpy for VOC emissions. After the changes, this facility will have individual uncontrolled HAP emissions greater than 10 tpy and total uncontrolled HAP emissions greater than 25 tpy. This facility will be assigned HAP emissions limits to limit facility-wide individual HAP emissions to less than 10 tpy and less than 25 tpy for total HAP. Compliance with these limits will be demonstrated by operating and maintaining the RTO and calculating both HAP and VOC emissions.
Standard No.1	This project does not have any fuel burning sources that meets the definition of a fuel burning operation. The material being heated by the Spray Dryer burner is contacted by and adds substance to the products of combustion.

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REGULATORY APPLICABILITY REVIEW	
Regulations	**Comments/Periodic Monitoring Requirements**
Standard No.3 (state only)	This facility will operate an RTO to control VOC and HAP emissions. These VOC and HAP emissions do not come from the combustion of virgin fuel and so this standard is applicable. The RTO is classified as an industrial incinerator for the purpose of this standard. The RTO is subject to the opacity and PM limit specified in Section III(I). Compliance with the PM limit is determined by conducting a performance test. Section VIIII(D)(5) requires that a performance test be conducted every 2 years for PM emissions from industrial incinerators but Section VIIII(A) contains a provision that allows the Department to waive a test. The PM testing was waived for the incinerators because they are not controlling PM emissions. Section VIII(C) states that the Department may require other tests by special permit conditions as indicated by a case-by-case evaluation of material being incinerated or burned and by source testing. The Department initially required a test for the RTO's DRE but the facility stated that due to the flow diminishing over time, this makes conducting a destruction efficiency test very difficult. Section VIIII(A) states that the requirement to conduct tests may be waived if an alternative method for determining compliance with emission limits can be developed which is acceptable to the Department. The facility proposed to conduct a design analysis using the procedures specified in 63.1257(a)(1) which is an acceptable alternative to the Department and so the DRE test was waived. This facility is not required to keep records as specified by Section VI(C). This facility is not required to submit reports as specified by Section VI(D) because these only apply to sources incinerating hazardous or municipal waste. Per Section V(G)(1) and Section V(G)(2), this facility is not required to conduct waste analyses for the RTO. Section VI(A)(2)(h) states that continuous monitoring for industrial incinerators may be required as in Section VII(A)(2)(d) (Hazardous Waste) or Section VI(A)(2)(e) (Municipal Waste) depending on the material being incinerated or burned and source test results. Since the waste being incinerated is not a hazardous or municipal waste, monitoring is not required under either of these sections. The training of RTO operators is exempted as specified by Section IX(D).

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REGULATORY APPLICABILITY REVIEW	
Regulations	**Comments/Periodic Monitoring Requirements**
Standard No.4	PM limits for this facility's processes are not specified elsewhere in the state regulations and so Section VIII is applicable. This facility determined it would have 1 process consisting of the Spray Dryer. Visible emissions limits for this facility's equipment other than the RTO is not specified elsewhere and so each piece of equipment was assigned a 20% opacity limit as specified by Section IX(B) because each will be installed after 1985. All other sections of this regulation do not apply because they apply to types of equipment that this facility does not have. This facility also does not have any non-enclosed operations.
Standard No.5	This regulation applies to specific processes. This facility does not have any of the processes specified in this regulation.
Standard No.5.2	This project has the following sources that burn a fuel and emit NO_x: (1) 1.12E+06 Btu/hr Spray Dryer Burner - Exempt as specified by Section I(B)(1). (2) RTO – Exempt as specified by Section I(B)(5).
Standard No.7	This facility is specified as one of the 28 specific industry types (2851 SIC Code) for PSD applicability which specifies a PSD applicability trigger of 100 tpy. This facility emits PM, $PM_{2.5}$, PM_{10}, SO_2, CO, NO_x and VOC which are PSD pollutants. Uncontrolled facility-wide emissions of these pollutants are each less than 100 tpy except for VOC. This facility's uncontrolled VOC emissions will be greater than 100 tpy but this facility will operate an RTO to limit its potential to emit to less than 100 tpy. This control device will be public noticed which will make it federally enforceable. This facility's potential to emit considering federally enforceable air pollution controls will be less than 100 tpy for this pollutant.
61-62.6	Some of this facility's reactors emit fugitive PM but all the reactors are located indoors and there is no mechanism to move the PM emissions outdoors.
40CFR60 and 61-62.60 Subpart Kb	40CFR60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984) was reviewed for applicability. Storage Tank Q does not meet the minimum size requirement that triggers applicability to this regulation.

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REGULATORY APPLICABILITY REVIEW	
Regulations	**Comments/Periodic Monitoring Requirements**
40CFR60 and 61-62.60 Subpart VVa	40CFR60 Subpart VVa (Standards of Performance For Equipment Leaks of VOC in The Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, Or Modification Commenced After November 7, 2006) was reviewed for applicability. 60.480a(a)(1) states that the provisions of this subpart apply to affected facilities in the synthetic organic chemicals manufacturing industry. From 60.481a (Definitions) synthetic organic chemicals manufacturing industry means the industry that produces, as intermediates or final products, one or more of the chemicals listed in 60.489. The new ANOBEX process will not produce, as intermediates or final products, any of the chemicals listed in 60.489.
40CFR60 and 61-62.60 Subpart III	40CFR60 Subpart III (Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes) was reviewed for applicability. None of this facility reactors are air oxidation reactors as defined in 60.611.
40CFR60 and 61-62.60 Subpart NNN	40CFR60 Subpart NNN (Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations). This facility does have distillation operations but this facility does not produce any of the chemicals listed in 60.667 as a product, co-product, by-product, or intermediate as specified by 60.660(a) to be subject.
40CFR60 and 61-62.60 Subpart RRR	40CFR60 Subpart RRR (Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes) was reviewed for applicability. 60.700(c)(1) (Applicability and Designation of Affected Facility) states that any reactor process that is designed and operated as a batch operation is not an affected facility and so this subpart does not apply. Also, this facility does not produce any of the chemicals listed in 60.707 as a product, co-product, by-product, or intermediate.
40CFR61 and 61-62.61	This project will not have any sources that meet any of the applicability requirements of all the subparts contained in this regulation.
40CFR63 and 61-62.63 Major Source MACT	After the changes, this facility will have an uncontrolled facility-wide individual HAP emissions greater than 10 tpy and its total uncontrolled combined HAP emissions will be greater than 25 tpy. This facility requested to limit its HAP emissions to less than 10 tpy for each individual HAP and less than 25 tpy for total HAP emissions and will be classified as an area source for MACT.

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REGULATORY APPLICABILITY REVIEW	
Regulations	**Comments/Periodic Monitoring Requirements**
40CFR63 and 61-62.63 Area Source MACT Subpart VVVVVV	Subpart VVVVVV (National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources) was reviewed for applicability. The ANOBEX process is not subject to this subpart. As specified by 63.11494(d), this facility was previously determined to have only one CMPU and to be subject to this regulation as specified by 63.11494(a) because the CMPU is located at an area source and when making Octopol MB, Methylene Chloride (Table 1 HAP) will be present in the reactor. The addition of the ANOBEX process will not change the CMPU determination and not change any of the standards and compliance requirements that this facility is already subject to from this regulation. 63.11494(e) requires an area source that installed a federally-enforceable control device on an affected CMPU to obtain a Title V permit if the control device on the affected CMPU is necessary to maintain the source's emissions at area source levels. This facility is not installing the RTO on the CMPU and so is not required to obtain a Title V permit.
61-62.68	This facility is subject to this regulation for their Sulfur Trioxide and Acrylonitrile storage tanks. Methylene Chloride is not on the list of regulated toxic substances in this regulation.
40CFR64 (CAM)	CAM applies to each PSEU when it is located at major source that is required to obtain Title V permit and this facility is not required to obtain a Title V permit.

AMBIENT AIR STANDARDS REVIEW	
Regulations	**Comments/Periodic Monitoring Requirements**
Standard No.2	This facility has demonstrated compliance with this standard by using air dispersion modeling. See modeling summary dated May 12, 2017.
Standard No.7.c	This facility is located in Greenville County. PSD minor source baselines for PM_{10} and SO_2 were established for this county in 2001 and NO_2 in 1995. This facility demonstrated compliance with this standard using air dispersion modeling. See modeling summary dated May 12, 2017.
Standard No.8 (state only)	This facility has demonstrated compliance with this standard by using air dispersion modeling. See modeling summary dated May 12, 2017.

PUBLIC NOTICE

This construction permit will undergo a 30-day public notice period to establish Synthetic Minor limits for VOC and HAP, in accordance with SC Regulation 61-62.1, Section II.N. The comment period was open from June 9, 2017 to July 8, 2017 and was placed on the BAQ website during that time period.

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SUMMARY AND CONCLUSIONS

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.